CLAIMS

What is claimed is:

1. A reflective polarizer for use in connection with a polarized light projector adapted to project light including visual information, comprising:

a diffuse reflective polarizer film; and

a non-polarization maintaining background provided to the diffuse reflective polarizer film;

whereby the diffuse reflective polarizer film and the non-polarization maintaining background cooperate to resolve and make perceptible to a viewer the visual information.

2. The reflective polarizer as recited in claim 1, wherein the non-polarization maintaining background is coated upon the back surface of the diffuse reflective polarizer film.

3. The reflective polarizer as recited in claim 1, wherein the non-polarization maintaining background comprises a paint.

4. The reflective polarizer as recited in claim 1, wherein the non-polarization maintaining background comprises a fabric.

5. The reflective polarizer as recited in claim 1, wherein the non-polarization maintaining material has a black color.

6. A reflective polarizer for use in connection with a polarized light projector adapted to project light including visual information, comprising:

a dual brightness enhancement film; and

a polarization maintaining background provided to the dual brightness enhancement film;

whereby the dual brightness enhancement film and the polarization maintaining background cooperate to resolve and make perceptible to a viewer the visual information.

7. The reflective polarizer as recited in claim 6, wherein the polarization maintaining background is coated upon the back surface of the dual brightness enhancement film.

8. The reflective polarizer as recited in claim 6, wherein the polarization maintaining background comprises a paint.

9. The reflective polarizer as recited in claim 6, wherein the polarization maintaining background comprises a fabric.

10. The reflective polarizer as recited in claim 6, wherein the polarization maintaining material has a silver color.

11. A reflective polarizer for use in connection with a polarized light projector adapted to project light including visual information, comprising:

a dual brightness enhancement layer having a front surface with a silver color; and

a polarization maintaining background provided to the back surface of the dual brightness enhancement layer;

whereby the dual brightness enhancement layer and the polarization maintaining background cooperate to resolve and make perceptible to a viewer the visual information.

12. The reflective polarizer as recited in claim 11, wherein the polarization maintaining background is coated upon the back surface of the dual brightness enhancement layer.

13. The reflective polarizer as recited in claim 11, wherein the polarization maintaining background comprises a paint.

14. The reflective polarizer as recited in claim 11, wherein the polarization maintaining background comprises a fabric.

15. The reflective polarizer as recited in claim 11, wherein the polarization maintaining material has a silver color.

16. A reflective polarizer for use in connection with a polarized light projector adapted to project light including visual information, comprising:

a dual brightness enhancement layer having a matte front surface; and

a non-polarization maintaining background provided to the dual brightness enhancement layer;

whereby the dual brightness enhancement layer and the non-polarization background material cooperate to resolve and make perceptible to a viewer the visual information.

17. The reflective polarizer as recited in claim 16, wherein the non-polarization maintaining background is coated upon the back surface of the dual brightness enhancement layer.

18. The reflective polarizer as recited in claim 16, wherein the non-polarization maintaining background comprises a paint.

19. The reflective polarizer as recited in claim 16, wherein the non-polarization maintaining background comprises a fabric.

20. The reflective polarizer as recited in claim 16, wherein the non-polarization maintaining material has a black color.

21. A reflective polarizer for use in connection with a polarized light projector adapted to project light including visual information, comprising:

a layer of clear material; and

a layer of reflective display film bonded to the layer of clear material;

whereby the layer of clear material and the layer of reflective display film cooperate to make perceptible to a viewer the visual information.

22. The reflective polarizer as recited in claim 21, wherein the layer of clear material is birefringent.

23. The reflective polarizer as recited in claim 21, wherein the layer of clear material comprises a fabric.

24. The reflective polarizer as recited in claim 21, wherein the non-polarization maintaining background comprises a fabric.

25. A reflective polarizer for use in connection with a polarized light projector adapted to project light including visual information, comprising:

a tile piece having embedded polarized pieces provided to make perceptible to a viewer the visual information;

wherein the polarized pieces are adapted to be resistant to water and solvents.

26. The reflective polarizers as recited in claim 25, wherein the polarized pieces are embedded in clear resin.

27. The reflective polarizers as recited in claim 25, wherein the polarized pieces are laminated between pieces of glass.

28. The reflective polarizers as recited in claim 25, wherein the polarized pieces are sandwiched between two pieces of PETG material.

29. The reflective polarizer as recited in claim 25, wherein the tile comprises a terrazzo type tile.

30. A reflective polarizer for use in connection with a polarized light projector adapted to project light including visual information, comprising:

a tile piece having polarized pieces provided to make perceptible to a viewer the visual information;

wherein the polarized pieces are sandwiched between two pieces of acrylic.

31. A reflective polarizer for use in connection with a polarized light projector adapted to project light including visual information, comprising:

a tile piece having polarized pieces provided to make perceptible to a viewer the visual information;

wherein the polarized pieces are sandwiched between two pieces of PETG.

32. A reflective polarizer for use in connection with a polarized light projector adapted to project light including visual information, comprising:

a tile piece having polarized pieces provided to make perceptible to a viewer the visual information;

wherein the polarized pieces are laminated to thin pieces of Plexiglas.

33. The reflective polarizer as recited in claim 32, wherein the polarized pieces are formed from a single larger sheet.

34. A reflective polarizer for use in connection with a polarized light projector adapted to project light including visual information, comprising:

a first layer of polarizer material; and

a second layer of letters formed from a polarizer material applied to the first layer;

wherein the first layer and the second layer cooperate to make perceptible to a viewer the visual information while allowing text formed by the letters to be visible.

35. The reflective polarizer as recited in claim 34, wherein the first layer of polarizer material and the second layer of letters generate identical colors.

36. A reflective polarizer for use in connection with a polarized light projector adapted to project light including visual information, comprising:

a first layer of polarizer material; and

a second layer of polarizer material having letters cut therefrom, the second layer of polarizer material applied to the first layer;

wherein the first layer and the second layer cooperate to make perceptible to a viewer the visual information while allowing text formed by the letters to be visible.

37. The reflective polarizer as recited in claim 36, wherein the first layer of polarizer material and the second layer of letters generate identical colors.

38. The reflective polarizer as recited in claim 36, wherein the first layer generates substantially the same color when the second layer generates different colors.

39. A polarized light viewing system, comprising:

a first transmissive polarizer composed of concentric rings of polarization material;

a plurality of partially overlapping birefringent materials disposed over the transmissive polarizer; and

a second transmissive polarizer disposed over the plurality of partially overlapping birefringent materials;

wherein each of the plurality of overlapping birefringent materials is individually free to rotate to change colors of the polarized light as it is viewed.

40. A latent effects projector, comprising:

a light projector adapted to project light including visual information; and

an aluminum on glass polarizer disposed in front of the light projector for polarizing the projected light.

41. The latent effects projector as recited in claim 40, wherein a substantial entirety of the aluminum on glass polarizer is disposed within the projected light.

42. The latent effects projector as recited in claim 41, wherein the aluminum on glass polarizer is approximately the same size as the projected light passing there through.

43. The latent effects projector as recited in claim 42, comprising a plurality of retarders disposed in front of the polarizer for polarization encoding birefringent color to the projected light.

44. A polarized birefringent rotary tool, comprising:

a circle formed of pieces of a polarizer wherein all of the pieces have an identical polarization angle.

45. The polarized birefringent rotary tool as recited in claim 44, wherein each piece has an angular resolution of approximately 15 degrees.

46. A method of calibrating a polarized light projector system including a latent color projector adapted to project light including visual information, the method comprising:

arranging a pair of polarizers such that transmission of the projected light through the pair of polarizers is substantially inhibited;

placing a first retarder between the pair of polarizers;

rotating the first retarder to a position that provides substantially the brightest throughput through the pair of polarizers;

placing a second retarder between the pair of polarizers and behind the first retarder;

rotating the second retarder to a position that provides substantially the least throughput through the pair of polarizers;

fixing the angular relationship between the first and second retarders forming a retarder laminate;

inserting the retarder laminate between the polarizer closest to the latent color projector and a birefringent rotary tool;

rotating the retarder laminate until a color spectrum appears on the rotary tool; and

locking the retarder laminate in this orientation relative to the polarizer closest to the latent color projector.

47. The method as recited in claim 46, wherein the first retarder comprises a 530 nanometer retarder.

48. The method as recited in claim 46, wherein the first retarder comprises a 560 nanometer retarder.

49. The method as recited in claim 46, wherein the second retarder comprises a 140 nanometer retarder.

50. The method as recited in claim 46, wherein a lexan material is substituted for at least one of the first and second retarders.

51. The method as recited in claim 46, wherein the brightest throughput provides an interference color that is blue or reddish blue in color.

52. A method of calibrating a polarized light projector system including a latent color projector adapted to project light including visual information, the method comprising:

arranging a pair of polarizers such that transmission of the projected light through the pair of polarizers is substantially inhibited;

placing a first retarder between the pair of polarizers;

rotating the first retarder to a position that provides substantially the brightest throughput through the pair of polarizers;

placing a second retarder between the pair of polarizers and behind the first retarder;

rotating the second retarder to a position that provides substantially the brightest throughput through the pair of polarizers and the first retarder;

placing a third retarder between the pair of polarizers and behind the second retarder;

rotating the third retarder to a position that provides substantially the least throughput through the pair of polarizers and the first and second retarders;

fixing the angular relationship between the first, second, and third retarders forming a retarder laminate;

inserting the retarder laminate between the polarizer closest to the latent color projector and a birefringent rotary tool

rotating the retarder laminate until a color spectrum appears on the rotary tool; and

locking the retarder laminate in this orientation relative to the polarizer closest to the latent color projector.

52. The method as recited in claim 51, wherein at least one of the first and second retarders comprises a 530 nanometer retarder.

53. The method as recited in claim 51, wherein at least one of the first and second retarders comprises a 560 nanometer retarder.

54. The method as recited in claim 51, wherein the third retarder comprises a 140 nanometer retarder.

55. The method as recited in claim 51, wherein a lexan material is substituted for at least one of the first, second and third retarders.

56. The method as recited in claim 51, wherein the brightest throughput provides an interference color that is blue or reddish blue in color.

57. A method of calibrating a polarized light projector system including a latent color projector adapted to project light including visual information, the method comprising:

arranging a pair of polarizers such that transmission of the projected light through the pair of polarizers is substantially inhibited;

placing a first retarder between the pair of polarizers;

rotating the first retarder to a position that provides substantially the brightest throughput through the pair of polarizers;

placing a second retarder between the pair of polarizers and behind the first retarder;

rotating the second retarder to a position that provides substantially the brightest throughput through the pair of polarizers and the first retarder;

placing a third retarder between the pair of polarizers and behind the second retarder;

rotating the third retarder to a position that provides substantially the brightest throughput through the pair of polarizers and the first and second retarders;

fixing the angular relationship between the first, second, and third retarders forming a retarder laminate;

inserting the retarder laminate between the polarizer closest to the latent color projector and a birefringent rotary tool;

rotating the retarder laminate until a color spectrum appears on the rotary tool; and

locking the retarder laminate in this orientation relative to the polarizer located nearest the latent color projector.

58. The method as recited in claim 57, wherein at least one of the first and second retarders comprises a 530 nanometer retarder.

59. The method as recited in claim 57, wherein at least one of the first and second retarders comprises a 560 nanometer retarder.

60. The method as recited in claim 57, wherein the third retarder comprises a 140 nanometer retarder.

61. The method as recited in claim 57, wherein at lexan material is substituted for at least one of the first, second and third retarders.

62. The method as recited in claim 57, wherein the brightest throughput provides an interference color that is blue or reddish blue in color.

63. A method of calibrating a polarized light projector system including a latent color projector adapted to project light including visual information, the method comprising:

arranging a pair of polarizers such that transmission of the projected light through the pair of polarizers is substantially inhibited;

placing a first retarder between the pair of polarizers;

rotating the first retarder to a position that provides substantially the brightest throughput through the pair of polarizers;

placing a second retarder between the pair of polarizers and behind the first retarder;

rotating the second retarder to a position that provides substantially the brightest throughput through the pair of polarizers;

fixing the angular relationship between the first and second retarders forming a retarder laminate;

inserting the retarder laminate between the polarizer closest to the latent color projector and a birefringent rotary tool;

rotating the retarder laminate until a color spectrum appears on the rotary tool; and

locking the retarder laminate in this orientation relative to the polarizer closest to the latent color projector.

64. The method as recited in claim 63, wherein the first retarder comprises a 530 nanometer retarder.

65. The method as recited in claim 63, wherein the first retarder comprises a 560 nanometer retarder.

66. The method as recited in claim 63, wherein the second retarder comprises a 140 nanometer retarder.

67. The method as recited in claim 63, wherein a lexan material is substituted for at least one of the first and second retarders.

68. The method as recited in claim 63, wherein the brightest throughput provides an interference color that is blue or reddish blue in color.